

487.90.2415

NOT TO BE PUBLISHED

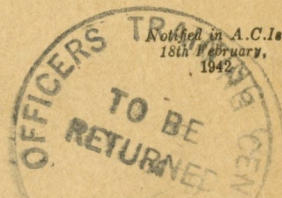
The information given in this document is not to be communicated, either directly or indirectly, to the Press or to any person not holding an official position in His Majesty's Service.

1010

26

G.S. Publications

627



Small Arms Training

Volume I, Pamphlet No. 18

Range Courses (War)

(For all units at home other than Royal Armoured Corps, Air Defence Great Britain, and Officer Cadet Training Units)

(This Pamphlet supersedes Small Arms Training, Vol. I, Pamphlet No. 18 (1939) and Supplements Numbers 1 and 2)

1942

Crown Copyright Reserved

By Command of the Army Council,

THE WAR OFFICE,
18th February, 1942

(Reprinted in Canada (May, 1942), by permission of the Controller, His Majesty's Stationery Office.)

18M-5-42 (4496)
H.Q. 70-44-61

CONTENTS

SEC.	PAGE
1. General instructions.....	1
2. Preliminary training.....	1
3. Zeroing.....	2
4. Supervision.....	6
5. Conduct of range practices.....	6
6. Signalling and scoring.....	8
7. Dress and equipment.....	10
8. Field firing.....	10
9. Safety precautions.....	11
10. Additional precautions for miniature and 30-yards ranges.....	12

APPENDICES

I. Rifle, light machine gun and machine gun courses: ammunition allotment.....	<i>facing page</i> 12
II. Miniature rifle practices.....	13
III. Rifle course.....	14
IV. Light machine gun course.....	16
V. Medium machine gun course.....	18
VI. Details of medium machine gun targets.....	30
VII. Anti-tank rifle course.....	32
VIII. Pistol course.....	42
IX. Thompson sub-machine gun course.....	45
X. 3-inch mortar practice.....	46
XI. Firing 2-inch mortar bombs.....	48
XII. Targets for rifle and L.M.G. courses.....	49

SMALL ARMS TRAINING

Volume I, Pamphlet No. 18—1942

Range Courses (War)

(For all units at home other than R.A.C.,
A.D.G.B., and O.C.T. Units)

GENERAL INSTRUCTIONS

1. **General.**—This pamphlet contains the instructions essential for firing the war courses with the rifle, light machine gun, medium machine gun, and other small arms weapons.

Details of the courses to be fired and ammunition allotment are given in appendices as follows:—

- | | |
|----------|--|
| Appendix | I.—Practices to be fired and ammunition allotment. |
| “ | II.—Miniature rifle practices. |
| “ | III.—Rifle course. |
| “ | IV.—Light machine gun course. |
| “ | V.—Machine gun course. |
| “ | VI.—Details of medium machine gun targets. |
| “ | VII.—Anti-tank rifle course. |
| “ | VIII.—Pistol course. |
| “ | IX.—Thompson sub-machine gun course. |
| “ | X.—3-inch mortar practice. |
| “ | XI.—2-inch mortar course. |
| “ | XII.—Targets for rifle and L.M.G. courses. |

These courses will be fired during the training of recruits, and thereafter as circumstances permit and ammunition allows, but at least once a year.

2. **Preliminary training.**—The training value obtained from firing with ball ammunition will depend on the thoroughness with which preliminary training has been carried out.

Particular attention is directed to the following —

i. *Tests of elementary training.*—Range practices are a waste of time and ammunition unless those taking part have reached a certain standard of efficiency.

The tests of elementary training give the required standard. They are designed to:—

- (a) Ensure that men have reached an efficient standard before they begin range practices.
- (b) Prevent any detail of elementary training being overlooked.

A record of the results of individual tests will be kept by company commanders and inspected periodically.

It is important that teaching should not be confused with testing. In the former, men are instructed by explanation and demonstration, followed by execution; in the latter, men are questioned or ordered to carry out a certain test, after due warning, without assistance, and they either pass or are put back for further instruction. The conditions of each test will be explained to individuals before it is carried out.

ii. *Miniature ranges.*—Miniature ranges are most suitable for the early rifle training of the recruit where elementary lessons in aiming, holding, trigger pressing, and many of the main factors which make for accurate shooting can be practised.

The difficulties of service shooting are not reproduced. There is no shock of discharge and there are no estimations of range, wind, etc. The windgauge, however, may be used to teach "aiming off."

Practices should conform to those fired later with service ammunition. Battle shooting and section practice in field firing can also be carried out on miniature battle practice ranges or on landscape targets using harmonized sights.

3. **Zeroing.**—i. Before the rifle, light machine gun, and medium machine gun courses are fired, and at any other time when considered necessary, weapons will be zeroed to ensure that the sighting is true for direction and elevation. A useful method of ascertaining the number of weapons that will require zeroing is to fire a *grouping* practice at 100 yards. Provided that a good group is obtained, any adjustment that may be necessary to the sighting will be indicated by the position of the *mean point of impact* in relation to the point of aim.

Vertical errors are corrected by fitting a different foresight and lateral errors by movement of the foresight on the block. A weapon should never be left with a remaining lateral error. Any alterations will be made by the armourer-sergeant, who must be present when zeroing or testing is in progress.

Records of zeroing will be made for the rifle in the soldier's record book and for light machine guns in the section commander's record book. Any remaining vertical error after adjustment will

also be noted so that the necessary allowance can be made by the firer at each distance.

All light machine gun barrels should be zeroed, especially when new barrels are fitted.

ii. The general conditions under which zeroing will be carried out, for all weapons, are:—

(a) Examination before test.

Weapons must be examined by the armourer before test, to ensure that all screws are tight and that the barrel is not influenced by the fore-end in the case of the rifle.

(b) Weather conditions.

Good shooting light, and the calmest available weather conditions, must be chosen.

(c) The bore must be dry and clean and should be warmed by firing into the stop-butt before making the group (Rifles, 2 rounds. Light machine guns, 5 rounds).

(d) Sights will be set at:—

200 yards for the rifle. (Windgauge, if any, to be central.)
200 yards for the light machine gun.

(e) Range.

Rifle and light machine gun. 100 yards from foresight to target is the most suitable range.

25 yards may be used as an alternative.

(f) Position.

Rifle. Lying. Forearm and wrist rested (not the rifle).
Light machine guns. Lying, bipod on firm ground.

(g) Targets.

Rifle and light machine gun. At 25 yards a representative target (Small 200/25), which must be fixed upright, or a plain white screen with a 1-inch black aiming mark.

At 100 yards 4-foot target with a white patch on the aiming mark.

(h) Sighters.

Sighting shots may be fired, as required, in zeroing the .303-inch Vickers machine gun.

(i) Stoppages.

If a stoppage occurs, the group will be repeated.

(k) Wind allowance.

Aim must be taken at the aiming mark, the necessary deflection being previously found by a known straight-shooting weapon or by estimation.

iii. Conditions particular to the various weapons and the standards of grouping are as follows:—

(a) No. 1 Rifle.—The backsight ramps are curved to give the correct increases in elevation for longer ranges, provided that the rifle is correctly sighted at 200 yards, i.e. the shot will strike the point of aim approximately at that range.

A group of five shots will be fired by a skilled firer, taking the same point of aim for each shot. Groups will be repeated after any adjustment of the foresight in order to verify.

The permissible variation in the mean point of impact for a rifle correctly sighted is given in the table below. Alterations to the position and/or size of the foresight will not be made unless the weapon groups to the standard given (*see (f) below*).

There are seven sizes of foresight available for adjustment of vertical errors. The difference of one size gives the following alterations to the mean point of impact.

At 100 yards, 2.77 inches or approx. 3 inches rise or drop on the target.

At 25 yards, 0.69 inches or approx. $\frac{3}{4}$ -inch rise or drop on the target.

Actual distance between firer and target	Sight adjustment	Correct position of M.P.I. with reference to aiming mark	Permissible variation in position of M.P.I. from correct point
100 yards	200	Approx. 3 inches directly above centre of lowest edge.	Not exceeding 2 inches above or below.
25 yards	200	Approx. $\frac{3}{4}$ inch directly above centre of lowest edge.	Not exceeding $\frac{1}{2}$ inch above or below.

(b) No. 3 Rifle (P.14).—There are 9 sizes of foresight available. The difference of one size gives the following alterations to the mean point of impact. At 100 yards 1.7 inches or approximately 2 inches; and at 25 yards .425 inches or approximately $\frac{1}{2}$ -inch rise or drop on the target.

The position of the mean point of impact and the permissible variation allowed are the same approximately as for the No. 1 rifle.

A No. 2 cramp is required for adjustment.

(c) No. 4 Rifle.—This rifle must be zeroed with the bayonet fixed. There will probably be 7 sizes of foresight available. The difference of one size gives the following alterations to the mean point of impact:—

At 100 yards, 1.89 inches or approx. 2 inches rise or fall on the target.

At 25 yards, .475 or approx. $\frac{1}{2}$ -inch rise or fall on the target.

Actual distance between firer and target	Sight adjustment	Correct position of M.P.I. with reference to aiming mark	Permissible variation in position of M.P.I. from correct point
100 yards	300 (bayonet fixed)	Approx. 6 inches above centre of lowest edge.	Not exceeding 1-inch above or below.
25 yards	300 (bayonet fixed)	Approx. 1 $\frac{1}{2}$ inches above centre of lowest edge.	Not exceeding $\frac{1}{2}$ inch above or below.

(d) Light machine guns.—A skilled shot will fire five single rounds. The table below shows the permissible variation in the mean point of impact for a light machine gun.

There are five sizes of foresight available for adjustment of vertical errors. The difference of one size gives the following alterations to the mean point of impact:—

At 100 yards, 3.48 inches or approx. 3 $\frac{1}{2}$ inches rise or drop on the target.

At 25 yards, 0.87 inch or approx. $\frac{7}{8}$ -inch rise or drop on the target.

Actual distance between firer and target	Sight adjustment	Correct position of M.P.I. with reference to aiming mark	Permissible variation in position of M.P.I. from correct point
100 yards	200	Approx. 3 inches above centre of lowest edge.	Not exceeding 3 inches above or below.
25 yards	200	*Approx. 1 inch to right of centre of lowest edge.	Not exceeding $\frac{1}{2}$ inch above or below.

* Lewis gun approximately centre of lowest edge.

(e) .303-inch Vickers machine gun.—Lateral adjustment of foresight. Range 30 yards (see Handbook of Vickers Machine Gun, 1940, page 71).

(f) Any weapon which in the hands of a skilled firer fails to make a good group will be tested. The standard (rifle and L.M.G.) will be:—

8-inch group at 100 yards;

2-inch group at 25 yards.

One wide shot to be ignored if so declared.

4. **Supervision.**—An officer will normally supervise the firing point at all times, but in exceptional circumstances where no officer is available, commanding officers may give authority for supervision by warrant officers. Duties in the butts may be carried out by non-commissioned officers.

The supervising officer is responsible that range standing orders, particularly with regard to safety, are complied with.

5. **Conduct of range practices.** — i. *Necessity for system.*—To get the maximum benefit from the time available on the ranges and from the range practices, there must be good and systematic organization.

An important object of range practices is to give men confidence. Instructional value will be lost if there is hustle and disorganization.

ii. *Reconnaissance.*—Previous personal reconnaissance is necessary to ascertain the following among other matters:—

(a) The number of target frames.

(b) The number and types of targets available.

(c) Whether the necessary appliances are available.

(d) Whether the range telephones are in working order.

(e) Details of the range standing orders.

(f) Local regulations regarding look-outs to be provided, or limitations on firing.

iii. *Preparations.*—As a result of his reconnaissance the officer responsible will make his plan. This will include the following preparations:—

(a) *Ammunition.*—Ammunition required should be drawn and transport arrangements made.

(b) *Ammunition party.*—A small party in charge of a non-commissioned officer should be detailed to take charge of ammunition, being responsible for issue and collection. It should be large enough to allow of reliefs while members of it are themselves firing. Sandbags will be useful for collection of empties.

(c) *Telephone.*—An orderly (non-commissioned officer if possible) should be detailed for the telephone.

A simple system of signals by rings for "check," etc., should be arranged, and conversation kept to a minimum.

(d) *Other duties.*—The necessary look-outs should be detailed and their duties explained to them.

(e) *Butt party.*—The butt party and those detailed above should arrive at the butts at least half an hour before firing is due to commence. On arrival, the officer or warrant officer in charge should detail markers on the scale of two to each target frame. If available, a non-commissioned officer should also be detailed to superintend each group of four targets. A telephone orderly should also be detailed. Any local range orders and safety precautions should be explained and targets required should then be drawn by groups and placed ready in target frames.

The party should then be collected and the practices to be fired explained and the method of marking and working the targets demonstrated.

Finally, a complete rehearsal on all targets should take place under the officer in charge. The importance of this rehearsal cannot be over emphasized. Poor marking leads to waste of time and places unnecessary difficulties on the firers.

One man on each target frame must watch the bank behind his particular target, and call out whenever a shot arrives; thereby avoiding delay, and unnecessary use of the telephone, should any shot miss the target.

A well organized butt party should aim at never keeping the firing point waiting, and reducing use of the telephone to a minimum.

(f) *Registers.*—Registers filled in with the names of the firers on their respective targets must be prepared beforehand.

(g) *Coaches.*—Coaches should be detailed if possible from among those who have been trained to coach.

iv. *Range discipline.*—The following system is suggested:—

(a) *Explanation.*—The officer in charge first explains the practice to be fired, stressing any points or giving final hints.

(b) *Forming up.*—The detail first to fire is formed up immediately behind the firing point and is issued with ammunition.

The detail next to fire is formed up behind and well clear of the firing point, ready to move forward.

(c) *Detail completes firing.*—Officer in charge orders "Unload. Right turn. For inspection port arms." Coaches inspect arms and report in order from left to right. Officer orders "Details change." The detail that has fired and the one that is waiting slope arms; the former moves off to the flank and hands in empty cases to the non-commissioned officer in charge of small arms ammunition; the detail to fire moves up on to the firing point and orders arms.

(d) *New detail arrives.*—The officer gives "Assume the lying position and get your cover comfortable" (or other instruction applicable). Coaches help. When all are ready officer gives "Load. 200. Etc."

(e) *Preparing next detail.*—The senior warrant officer or non-commissioned officer meanwhile forms up the next detail, in accordance with his roll, 10 yards in rear of the firing point and the small arms ammunition party issues ammunition to them.

6. **Signalling and scoring.**—The standard of scoring which follows is given as a guide. Shots cutting the edge of any ring, rectangle, or figure will be counted to the benefit of the firer.

Type of Target	Points for Score	Method of Signalling
4-ft. and 6-ft. targets (Rifle)	4	White disc placed on shot hole. Black disc waved twice across face of target, and placed with centre on shot hole. Disc revolved in front of target and then placed with centre on shot hole; black side exposed. Black disc moved vertically up and down left of target and then placed with centre on shot hole. Red and white flag shown on same side as direction of miss. If the direction cannot be determined, the flag will be waved across the face of the target.
Bull's-eye (Fig. 5 or 3).		
4-in. group (100 yds.).....	25	
1-in. group (25 yds.).....	25	
Inner.....	3	
8-in. group (100 yds.).....	20	
2-in. group (25 yds.).....	20	
Magpie.....	2	
12-in. group (100 yds.).....	15	
3-in. group (25 yds.).....	15	
Outer.....	1	
12-in. group (100 yds.), 1 wide	10	
3-in. group (25 yds.), 1 wide	10	
Ricochet, miss on remainder of target not within outer circle.	Nil	
Grouping (L.M.G.)—		
2-in. group (25 yds.), four shots within ring.	10	
3-in. group (25 yds.), four shots within ring.	6	
4-in. group (25 yds.), four shots within ring.	2	
Snapshotting.....	3	Target twirled above gallery.
Figure targets.....	3	
L.M.G. screens (each scoring rectangle containing):—		
1 shot.....	2	
2 shots.....	4	
3 shots.....	6	
4 or more shots.....	8	

Vickers M.G. application:—

Type of Target	Points for Score
Application, 6 ft.....	Tables 1 and 2: Each hit on target below and including ten, 4 points. Table 2: Above ten, 5 points.
Traversing application, 4 ft.	5 points for one hit. 1 point for each additional hit up to maximum of 12 hits.

NOTES

Rifle groups will be measured with wire rings 4, 8 and 12 inches in diameter. No points will be awarded to a group unless there are five shot holes on the target. If there are more than five shot holes, there will be no score and the practice will be repeated. Where it is found impracticable for the firer to go to the target, groups will be signalled and the position of the mean point of impact shown by placing the centre of the marking disc on it.

In rapid practices, bull's-eyes and inners will score 3 points and will be signalled as bull's-eyes.

7. Dress and equipment.—Marching order will be worn for all practices.

8. Field firing.—Exercises with ball ammunition on the field firing range are the culmination of weapon training. The field firing range provides conditions most nearly akin to war, and all shooting on other ranges will be regarded merely as a means to obtain efficiency in this final test.

Officers responsible will visit the range and prepare the practices, having regard to the lessons to be taught, target facilities, safety precautions and ammunition available. The value of the exercise will depend on sound preparation, clear explanation to those taking part, and a well-conducted criticism at the conclusion. Simple problems should be designed so that all actions of the fire unit are such as would be possible and likely in war.

Officers or non-commissioned officers will be detailed to each fire unit to watch its action and act as umpires: they should conform to the movements of the section. They will be responsible to the officer superintending for safety precautions, but, apart from ensuring that these are observed, they will not interfere with the actions of firers or leaders.

Realistic targets, such as figures to represent enemy deployed for action and anti-tank guns or light machine guns in action, should be provided. Care should be taken to render these targets as inconspicuous as they are likely to be in war. Means must be improvised to represent the enemy's opening of fire. This can be done by firing blank and throwing out small fireworks from pits.

Times taken to pick up a target and bring it under effective fire should be recorded and the number of hits obtained also checked.

At the conclusion, a conference will be held. The officers or non-commissioned officers who accompanied each sub-unit as

umpires should deal with detailed points. The superintending officer, after obtaining the necessary information from the butts and from the umpires should explain the enemy action, comment on the means taken to combat it, and bring out the main lessons of the exercise.

Exercises should be restricted to sections and platoons.

9. Safety precautions.—

All Ranges

i. Firing will not take place until the danger flags are hoisted and look-out men posted according to the by-laws and standing orders.

ii. A red danger flag will be hoisted at the butts as a warning to cease fire. The flag will be kept up until the whole of the butt party is under cover. No one will leave the butts until the cessation of fire has been notified from the firing point. When cessation of fire is required, the superintending officer at the firing point will normally give the order.

iii. A red flag will be hoisted at the firing point when no firing is taking place. It will always be hoisted when the danger flag is flying at the butts.

iv. Weapons will be pointed towards the butts during inspection and when loading or unloading takes place.

v. No one, except the firers, the instructors and the officers on duty, will be allowed on the firing point.

vi. If firing is suspended during a practice, or whenever the danger flag is hoisted at the butts, safety catches will be applied, rifles will be laid on their sides, locks of Vickers machine guns will be removed from the lock guides, magazines will be removed from light machine guns, weapons on the firing point will not be touched and firers will stand up.

Light machine guns will be unloaded without firing the round in the chamber. Anti-tank rifles will be unloaded.

vii. No one will be in front of the magazine or feed block in machine-gun practices.

viii. After firing, live rounds will be separated from empty cases and collected, under the orders of the superintending officer.

ix. An officer will inspect all weapons, magazines and equipment before they are removed from the firing point, to ensure that they are unloaded and that the men are not in possession of ammunition. A further inspection will take place before the company or party leaves the range, and A.F.B. 159A will be completed.

x. Repairs and replacements will not be carried out until a gun is clear. No one except the gun numbers authorized to be on

the firing point by the conditions of the practice will be permitted to touch the gun without permission when a stoppage occurs.

xi. No weapon will be loaded without orders from the superintending officer.

xii. Drill cartridges will not be taken on the range, except for use in stoppage practices. In this case the drill cartridges will be taken to and from the range under the orders of the company, etc., commander.

xiii. Pistols will be kept in the case until actually required for use. When out of the case, they will be carried at the rest position.

xiv. Indiscriminate snapping is forbidden.

xv. After firing with the pistol, the officer in charge will give the order "Unload." No one will be allowed to move towards the target until the officer in charge gives an order to that effect.

10. Additional precautions for miniature and 30-yards ranges.—*Miniature range.*—When it is necessary to examine targets, rifles will be unloaded and laid on the firing point with the breech open, and the red flag will be raised before anyone goes to the target.

30-yards range:—

i. No more than six rifles or four machine guns will be fired at the same time on the standard 30-yards range.

ii. During the firing of machine gun practices, the superintending officer may make special arrangements to call those waiting to fire up to a position from which they can hear the instruction and criticism, but even then they must be at least five yards in rear of the firer.

iii. No target will be placed within four feet of the sides of the bullet catcher.

iv. Representative targets and pistol targets will be placed at the bottom of the bullet catcher.

v. Landscape targets will be placed so that the skyscreen is at the bottom of the bullet catcher and the picture below it.

vi. Anti-aircraft targets, 22-inch, will be placed so that the line of fire is directed into the bullet catcher.

vii. Steel plates, moving targets and anti-aircraft targets, other than the approved 22-inch, are not allowed.

viii. Pistol practices involving the advance of the firer or the target will not be carried out.

APPENDIX I

RIFLE, L.M.G. AND M.G. COURSES

AMMUNITION ALLOTMENT AND COURSES TO BE FIRED

[To face page 12]

Serial	Arm of the Service	Category	Rifle (Appendix III)				L.M.G. (Appendix IV)				M.M.G. (Appendix V)			
			Practices	S.A.A.	C.O.'s. Pool for Zeroing and Field Firing	Total	Practices	S.A.A. (b)	C.O.'s. Pool Field Firing	Total	Practices	S.A.A. (a)	Total S.A.A.	
1	CAVALRY, YEOMANRY (HORSED), GUARDS, INFANTRY OF THE LINE. MOTOR AND RECONNAISSANCE BNS.	Recruits at training centres and depots and with units.	1 to 8	45	10	55	1 to 6	100	—	100	—	—	155	<p>NOTES.</p> <p>(1) The first call on C.O.'s. Pool is for zeroing rifles, which will require approximately 10 rounds per rifle. The residue should be used for field firing exercises for sections and platoons in conjunction with C.O.s. Pool for L.M.G.</p> <p>(2) An additional allotment of 15 rounds per L.M.G. barrel is made for zeroing purposes.</p> <p>(3) Tracer and .303 ammunition for horsepipe firing will be a matter for special allotment.</p> <p>(4) These courses will be fired during the training of recruits and thereafter as circumstances permit and ammunition allows. The aim should be at least once every year.</p>
		All personnel other than above with units. Staff at training centres.	1 to 8	45	15	60	1 to 6	100	20	120	—	—	180	
2	A.TK. REGIMENTS R.A.	Recruits at training centres and with units who have not previously fired.	1 to 5	25	10	35	1 to 4	70	—	70	—	—	105	
		All other personnel.	1 to 4	20	10	30	1 to 4	70	—	70	—	—	100	
3	R.E.	Recruits and personnel with units who have not previously fired.	1 to 8	45	10	55	See below.				—	—	55	
		Other personnel with units.	1 to 4	20	10	30	See below.				—	—	30	
		A.A.L.M. gunners with units, and all recruits at training units.	As above.				1 to 4	70	—	70	—	—	70	
4	MACHINE GUN BNS.	Recruits at training centres and depots and with units who have not previously fired.	1 to 5	25	10	35	—	—	—	—	Parts I and II	105	140	
		Other personnel with units.	1 to 4	20	10	30	—	—	—	—	Parts I & II Parts III & IV	As available	140	
		A.A.L.M. gunners with units.	As above.				1 to 4	70	—	70	As above.		70	
		7% of recruits at M.G.T.Cs.	As above.				1 to 4	70	—	70	As above.		70	
5	R.A. OTHER THAN A.TK. REGIMENTS, R.A.S.C., R. SIGS., R.A.O.C.	Recruits and all person- nel.	1 to 4	20	10	30	—	—	—	—	—	—	30	
		A.A.L.M. gunners and 50% of recruits.	As above.				1 to 4	70	—	70	—	—	70	

- the firm
to touc
xi. 1
tending
xii. 1
use in
taken to
commal
xiii.
use. V
xiv.
xv.
the ord
target
10. 4
ranges
targets,
the bre
to the t
- 30-yard
i. 1
- ii. I
- iii. 1
- iv. 1
- v. 1
- vi. 4
- vii. 8
- viii. 1

Serial	Practice	Target	Rounds	Detail	Average scores as a guide only
A.	Grouping.....	Small (representative 200)	5	Lying with wrist or forearm rested	25
B.	Slow.....	Small (representative 200)	5	Lying with wrist or forearm rested	20
C.	Slow.....	Large (representative 500)	5	Lying with wrist or forearm rested	20
D.	Snapshooting	Small Snapshooting (representative 100)	5	Standing in trench, 5 seconds' exposure each. Rifle in aim before target appears	15
Total.....				20	80
					55
					40

APPENDIX II
MINIATURE RIFLE PRACTICES

Further practices, particularly grouping, should be fired if ammunition is available.

Serial	Practice	Target	Rounds	Detail	Average scores as a guide only	
					H.P.S.	2nd Class
A.	Grouping.....	Small (representative 200)	5	Lying with wrist or forearm rested	25	15
B.	Slow.....	Small (representative 200)	5	Lying with wrist or forearm rested	20	11
C.	Slow.....	Large (representative 500)	5	Lying with wrist or forearm rested	20	5
D.	Snapshooting	Small Snapshooting (representative 100)	5	Standing in trench, 5 seconds' exposure each. Rifle in aim before target appears	15	9
Total.....				20	80	40
					55	

For details of targets, see Small Arms Training, Volume V, 1931, Section 47.

APPENDIX III
RIFLE COURSE

(For details of targets see Appendix XII)

No.	Practice	Target	Distance in yards	Rounds	Detail	H.P.S.	Remarks
1	Grouping.....	4 ft. with aiming mark.	100	5	Lying (a). Bayonet fixed.	25	Rifles will be zeroed before commencing the course (see para. 3).
2	Application (c)	4 ft.....	200	5	Standing in trench (a). Bayonet fixed. If no trench available, lying (a).	20	(a) Wrist or forearm rested.
3	Snaphooting (c)	Fig. 4A (d)	200	5	Standing in trench (a). Bayonet fixed. If no trench available, lying (a). Exposure, 5 seconds for each shot. The firer may be in the aim throughout. Each shot will be signalled.	15 (e)	(b) In the open. No support whatever. (c) Practices 2 and 3 should be fired by each detail consecutively. (d) If not available, fig. 3 or large snaphooting target may be substituted. (e) 3 points per hit. (f) Practices 5 and 6 should be fired by each detail consecutively. (g) Bulls and inners count 3 points.
4	Timed (Gas)....	4 ft.....	200	5	Lying (b). Bayonet fixed. Time, 60 seconds. The respirator to be adjusted before the practice commences.	20	(i) In exceptional cases where no open range can be made

NORMS

(i) In exceptional cases where no open range can be made

APPENDIX III—RIFLE COURSE (Continued)

No.	Practice	Target	Distance in yards	Rounds	Detail	H.P.S.	Remarks
5	Application (f)..	4 ft.....	300	5	Lying (a). Bayonet fixed.	20	available, practices may be fired on the 30-yards range with the approval of brigade or area commanders. This must be avoided whenever possible.
6	Snaphooting (f)	Fig. 4A (d)	300	5	Lying (a). Bayonet fixed. The firer may be in the aim throughout. Five seconds for each shot. Each shot will be signalled.	15 (e)	(ii) QUALIFICATION STANDARDS:—
7	Rapid.....	4 ft.....	300	10	Standing in a trench (a). Bayonet fixed. If no trench is available, lying (a). Firer (rifle loaded with 5 rounds, the remaining 5 in the pouch buttoned) to be in the aim before the target appears. Exposure, 40 seconds.	30 (g)	Rifle 1st 2nd Course Class Class H.P.S. Pr. 1.. 20 15 25 2.. 17 14 20 3.. 9 6 15 4.. 11 8 20 5.. 12 8 20 6.. 9 6 15 7.. 20 15 30 8.. 12 8 20
8	Application.....	6 ft.....	500	5	Lying (a).....	20	110 80 165
Total...						45	165

APPENDIX IV
L.M.G. COURSE

(For details of targets see Appendix XII.)

No.	Practice	Target	Distance in Yards	Rounds	Detail	H.P.S.	Remarks
1	Single Rounds..	4 ft.....	200	5	The 5 shots will be signalled in the normal way as for the rifle. To test accuracy of aim combined with trigger pressing.	20 (a)	(a) Scoring as for rifle. (b) Scoring: Bulls and Inners, 2 points; Magpies and Outers, 1 point. (c) Scoring: Each hit within Magpie (4 ft.) circle, 2 points; each hit within outer (6 ft.) circle, 1 point.
2	Application at normal rate (d)	4 ft.....	200	15	To be fired in 3 or 4 bursts at the normal rate. M.P.I. of each burst to be signalled.	30 (b)	(d) Practices 2 and 3 will be fired by each detail consecutively.
3	Rapid (d).....	4 ft.....	200	30	30 rounds in 2 magazines (15 in each). The second magazine in the firer's pouch. The appearance of the target to be the signal to open fire. The target will be exposed for 30 seconds.	60 (b)	(e) If 500 firing point is not available, these practices may be fired at 400 or 300 yards. NOTES (i) General Conditions. For all practices gun will be loaded, sights adjusted
4	Application at normal rate.	4 ft.....	300	20	To be fired in 4 or 5 bursts at the normal rate. M.P.I. of each burst to be signalled	40 (b)	

APPENDIX IV—Continued
L.M.G. COURSE—Continued

No.	Practice	Target	Distance in Yards	Rounds	Detail	H.P.S.	Remarks
5	Application at normal rate	6 ft.....	500 (e)	15	To be fired in 3 or 4 bursts at the normal rate. M.P.I. of each burst to be signalled.	30 (c)	and the butt in the shoulder before the target appears or the order to fire is given. The butt strap may be back if desired. (ii) Zeroing. See para. 3.
6	Timed (Gas)....	6 ft.....	500 (e)	15	15 rounds in one magazine. Firer in position on the firing point on the ground with respirator adjusted. The target will be exposed for 20 seconds.	30 (c)	
Total S.A.A.....				100	H.P.S.....	210	

QUALIFICATION STANDARDS

Pr.	Class		H.P.S.
	1st	2nd	
1..	15	12	30
2..	20	15	30
3..	40	30	60
4..	25	20	40
5..	20	13	30
6..	15	10	30
	135	100	210

APPENDIX V
M.M.G. COURSE
PART I

NOTE.—The practices in Part I should be fired practice by practice as the appropriate stage of training is reached.

Practice No.	Practice	Target	Rounds	Detail	Remarks
1	Service burst	Plain screen.....	7	To be used as a pool to demonstrate to each squad a service burst of 25 rounds.	It should be explained that this is the normal burst on service, though such bursts are not fired during the course. In future practices the thumb piece should continue to be pressed for the duration of a service burst, although less rounds will be fired.
2	Single shot traverse	Horizontal and oblique lines on a white screen (see Appendix VI)	20	<p><i>Object.</i>—To practise the firer in the regulation tap for traversing a horizontal and an oblique target.</p> <p>i. Rounds will be spaced in four groups of 5 rounds each.</p> <p>ii. The firer is ordered to traverse from one end of the line, the order "Stop" being given after 5 rounds have been fired. He is then ordered to traverse from the other end.</p> <p>iii. The procedure is carried out first on the horizontal and then on the oblique lines.</p>	<p>i. The firer will test his clamp before the practice.</p> <p>ii. The shots should be four inches apart laterally.</p>

APPENDIX V—Continued
M.M.G. COURSE—Continued
PART I—Continued

TO BE FIRED ON THE 30 YARDS RANGE

Practice No.	Practice	Target	Rounds	Detail	Remarks
3	Indirect Fire Practice	White screen with aiming mark	3	<p><i>Object.</i>—To practise firer using the dial sight.</p> <p>i. Rounds to be spaced singly.</p> <p>ii. The aiming post is put out and the dial sight affixed to the gun.</p> <p>iii. The firer will be ordered to lay with the tangent sight on one of the aiming marks.</p> <p>iv. The aim is checked by the instructor and the tangent sight lowered.</p> <p>v. The range drum on dial sight will be set at 450 yards by the firer who will level the bubble by means of angle of sight drum.</p> <p>vi. The firer will then align the collimator on to the aiming post.</p> <p>vii. The order "Fire" will be given.</p> <p>viii. After firing the first round the firer will be given a switch of not less than 20' and not more than 1° 30' in multiples of 10' Right or Left, before being given the order to fire the second round.</p> <p>ix. Before firing the final round the firer will be given, in addition to a switch as for second round, a range correction of 400 yards. The bubble must be levelled by means of the elevating wheel before firing this round.</p>	<p>i. After each correction has been applied the instructor will check the aim before allowing the practice to continue.</p> <p>ii. The second round should be displaced 4" per 15' of switch R. or L. of the first group.</p> <p>iii. The final round should be displaced from the second as above, and approximately 8 inches above or below.</p> <p>iv. The firer will keep the thumb piece pressed as for service bursts.</p>

APPENDIX V—Continued
M.M.G. COURSE—Continued
PART I—Continued

TO BE FIRED ON THE 30 YARDS RANGE

Practice No.	Practice	Target	Rounds	Detail	Remarks
4	Immediate Action (Night)	Plain white screen	20	<p><i>Object.</i>—To practise immediate action by night.</p> <p>i. The belt should be prepared beforehand with a series of stoppages.</p> <p>ii. The gun will be mounted, dial sight fixed and aiming lamp put out.</p> <p>iii. The gun will be laid using the tangent sight on the centre of the screen which will be illuminated by a torch.</p> <p>iv. When the range is clear, the order "load" will be given.</p> <p>v. The range drum will be set at 450 yards and the bubble levelled by means of the angle of sight drum.</p> <p>vi. The collimator will then be aligned on the aiming lamp.</p> <p>vii. The order "fire" will be given.</p> <p>viii. The gun will be knocked off its alignment by the instructor as each stoppage occurs.</p>	<p>1. Accuracy in relaying will be judged from the size of the complete group.</p> <p>2. This practice must be fired in darkness.</p>
Total, Part I				50	

M.M.G. COURSE, PART I MODIFIED PRACTICES 3 AND 4
(WHEN USING CLINOMETERS AND BAR FORESIGHTS)

[To face page 20]

Practice No.	Practice	Target	Rounds	Detail	Remarks
3	Indirect fire practice	With screen with aiming mark	3	<p><i>Object.</i>—To practise the Nos. 1 and 2 in the use of the clinometer and bar foresight.</p> <p>i. Rounds spaced singly.</p> <p>ii. The firer is ordered to lay at the aiming mark with the tangent sight at 450 yds.</p> <p>iii. The bar foresight is affixed.</p> <p>iv. The aiming post is put out, and the aim checked by the instructor. The clinometer will be placed on the guns and the elevation recorded.</p> <p>v. The orders "Load" and "Fire" are given.</p> <p>vi. The first shot should be on or near the aiming mark. After firing the first round, a switch of not less than 20' or more than 1° 30' in multiples of 10' Right or Left is given, and the next round is fired.</p> <p>vii. Before firing the final round, the firer will be given, in addition to a switch as for the second round, a correction in elevation up or down of not less than 15' and not more than 45' in multiples of 5. The gun must be relaid by means of the elevating wheel. The No. 2 will place the new elevation on the clinometer, and the order "check elevation" will be given.</p>	<p>i. After each correction has been applied the instructor will check the aim before allowing the practice to continue.</p> <p>ii. A correction of 10' gives a displacement of 2½ ins. at 25 yds., the actual range of most 30 yds. ranges.</p>
4	Immediate action.	Plain white screen.	20	<p><i>Object.</i>—To practise immediate action under conditions of darkness.</p> <p>i. The belt should be prepared beforehand with a series of stoppages.</p> <p>ii. The gun will be mounted and laid on the centre of the screen (which at night will be illuminated by a torch).</p> <p>iii. The bar foresight and night sights will be fixed, the tangent sight set at 2,500 yds., and the aiming lamp will be put out.</p> <p>iv. If carried out in daylight, the No. 1 will be blindfolded or prevented by other means from seeing the gun.</p> <p>v. The orders "Load" and "Fire" will be given.</p> <p>vi. The No. 1 will remedy stoppages as they occur, and, before firing each burst, will be trained to shout "relayed" to remind him that this process is necessary under service conditions.</p>	<p>This practice must, if possible, be carried out by night.</p>

APPENDIX V—Continued
M.M.G. COURSE—Continued
PART I—Continued

Practice No.	Practice	Target	Rounds	Remarks
5	Registration	Prepared patch on stop butts	15	
6	Tapping Right and Left (Gas)	Coloured screen (see Appendix VI)	25	

APPENDIX V—Continued
PART II

To BE FIRED ON OPEN RANGE AT 600 YARDS
NOTE.—The practices of this Part will be fired consecutively.

Practice No.	Practice	Target	Rounds	Detail	Remarks
5	Registration	Prepared patch on stop butts	15	<p><i>Object</i>—To register the correct range and wind allowance before applying fire.</p> <p>i. Rounds will be spaced in groups of 5.</p> <p>ii. The gun will be mounted and loaded. On the order being given for the practice to commence the firer will engage the patch and register the range and wind allowance necessary to hit the centre of it.</p>	The position of the M.P.I. of each burst with reference to the centre of the patch will be signalled from the butts on a 6-ft. target hoisted for this purpose.
6	Tapping Right and Left (Gas)	Coloured screen (see Appendix VI)	25	<p><i>Object</i>—To test the practical application of fire on a target of little width.</p> <p>i. Rounds will not be spaced, but bursts of about 5 rounds will be fired.</p> <p>ii. The gun will be mounted and loaded but not laid on the screen.</p> <p>iii. Nos. 1 and 2 will be ordered to adjust respirators.</p> <p>iv. On the order "Go" the firer will engage the target by tapping right and left one tap.</p> <p>v. He will fire 5 bursts and may check his aim and if necessary relay twice only, immediately before the third and fifth bursts.</p>	

APPENDIX V—Continued
PART II—Continued
TO BE FIRED ON OPEN RANGE AT 600 YARDS

Practice No.	Practice Application	Target	Rounds	Detail	Remarks
7	Service Application	6 ft.	15	<p><i>Object.</i>—To test the engagement of a target from the lowest service position.</p> <p>i. Rounds will be spaced in groups of 5.</p> <p>ii. Gun and tripod will be laid on the ground about 3 paces in rear of the spot on which the gun will be mounted. Tripod on left and legs set for the sitting position. Sights at zero.</p> <p>Ammunition box and condenser call in a convenient position on the firing point. No. 2 will be required to assist the firer.</p> <p>iii. The position at which the firer's target will appear will be indicated to him.</p> <p>iv. The exposure will be timed from the butts.</p> <p>v. On the appearance of the target, the firer and his No. 2 will bring the gun into action in its lowest service position and engage the target.</p> <p>vi. Time allowed, 150 seconds.</p>	
Total Part II			55		

APPENDIX V (contd.)

PARTS III AND IV

FIRE CONTROL AND TACTICAL EXERCISES
WITH AMMUNITION

General

1. If time and ammunition are available the Parts III and IV of the medium machine gun course should be fired.

2. Field firing ranges will always be scarce, and it is essential that the time spent upon them is not wasted.

Very careful previous reconnaissance by the commanders concerned is therefore necessary.

3. Dress

Marching order will be worn by all ranks taking part in Parts III and IV.

PART III

4. Object

The objects of this part are:—

(a) To practise fire unit commanders and their understudies in obtaining fire effect rapidly, by direct and indirect means, by day and by night, and in making corrections from observation of strike.

(b) To exercise the personnel in section and platoon drill, fire discipline, and the maintenance of the guns in action.

(c) To practise range-takers in taking ranges and in observation of fire.

(d) To cultivate team work in the fire units.

(e) If time and ammunition allow to stage demonstrations of fire control, beaten zones, etc.

5. General

In sub-allotting the available ammunition, consideration will be given to the following:—

(a) The machine gun is primarily a direct fire weapon. Therefore the bulk of the ammunition will be allotted to direct fire exercises.

(b) A high average standard of efficiency is to be aimed at, and not the training of a few experts. Consequently every potential fire unit commander should be exercised, and the Numbers 1 and 2 at the guns frequently changed over.

- (c) The ammunition available may not be sufficient for every platoon to carry out all the methods of indirect fire. When one platoon is being exercised the remainder should watch and have all the instructional points explained to them.

When firing indirect it may be necessary, owing to shortage of ammunition, to fire with the two flank guns of a platoon only though the whole of the drill should be carried out by the centre guns.

- (d) The value to be obtained from the exercises is greatly increased if the fire controller is able to observe the strike of the bullets. Observer and tracer ammunition, when available, are a useful guide as to whether or not fire effect has been obtained.

- (e) Continued repetition of Part III exercises will not produce results in proportion to the expenditure of ammunition, especially in conditions where observation of strike is not possible.

Once the non-commissioned officers and men have been exercised in fire control and fire discipline in accordance with these notes, any further ammunition available for Part III is best expended in exercises on a competition basis.

- (f) Demonstrations in methods of fire control, trajectories, beaten zones, safety limits, etc., are a valuable means of teaching the characteristics of the weapon. Such demonstrations require a proportion of tracer ammunition. If tracer ammunition is scarce, priority should be given to fire control exercises and not to demonstrations.

- (g) Every effort will be made to produce conditions resembling as far as possible those of active service. Where departure from service positions is unavoidable the reasons must be fully explained to those under instruction to prevent false lessons from being learnt.

- (h) Some of the exercises should begin with the guns on the truck at positions in readiness, so that the fire unit can be practised in the procedure for coming into and out of action.

- (i) It is suggested that as many as possible of the following should be exercised as fire controllers:—

- (i) Direct fire.—Four per section, i.e. section commander, section corporal and two others (preferably the range-taker).

- (ii) Indirect fire.—Two per platoon, i.e. platoon commander and platoon sergeant.

6. Procedure

(a) Before the day of firing

- i. The company commander carries out a reconnaissance, allots firing areas to platoons for direct fire and selects those to be used for indirect fire.
- ii. The platoon commander decides on the targets to be engaged by each fire controller and the stage from which each exercise will commence.

Targets should be selected mainly in areas which are likely to give observation of strike, and should vary in shape and range to bring out the various methods of fire.

Each exercise will be designed to bring out a definite lesson.

- iii. Two range cards will be prepared for each firing area, one for use by the officer conducting the exercises and the other for the fire controller, when it is desired that he shall commence the exercise with a range card already prepared.

(b) On the day of firing

Direct fire

- i. The platoon commander describes the arc of fire, safety arrangements, etc. All personnel to be exercised as fire controllers then assemble under the platoon commander and the remainder of the platoon under the platoon sergeant.
- ii. As far as possible the personnel of each section should be exercised together. Each fire controller should work with his own range-taker, though all range-takers of the platoon should be exercised in observation of fire.
- iii. The platoon commander selects the fire controller to be exercised, and indicates by means of a director the target to be engaged. The fire controller then proceeds to engage the target, his actions and orders being watched and heard by the other fire controllers. At the conclusion of the exercise the platoon commander discusses and comments on the action and orders of the fire controller. It may sometimes be advisable to stop the exercise temporarily to discuss certain points.

- iv. At the same time the platoon sergeant details the necessary gun numbers, who are frequently and systematically changed to ensure that they are all exercised. Throughout the exercise he takes charge of the spare gun numbers with whom he discusses, and comments on, the action of those actually manning the guns.

Indirect

- i. It will usually only be possible for one platoon of a company to fire at a time.
- ii. The procedure is the same as for direct fire, except that the company commander conducts the exercises and comments on the action and orders of all fire controllers.
- iii. The remainder of the company assembles near the gun position under warrant officers and non-commissioned officers specially detailed. They discuss the action of the personnel actually manning the guns.
- iv. All range-takers not actually being exercised assemble under a qualified instructor and practise observation of fire.

PART IV

7. Objects

The objects of Part IV are:—

- (a) To practise the carrying out of tactical machine gun roles using ammunition.
- (b) To provide company commanders with a means of testing the standard of field duties, fire control, fire discipline and drill reached by their platoons.

8. Part IV is the final stage of platoon training.

The number of exercises which can be usefully carried out is limited only by the amount of ammunition available or by the time for which a field firing range can be allotted.

9. The phases of the battle which may be practised include the following:—

- (a) Attack—covering fire, consolidation and flank protection.
- (b) Defence.
- (c) Withdrawal.

- (d) Any special form of warfare for which the unit is training, e.g.:—

Mountain warfare.

Desert warfare.

Static warfare (harassing and counter-preparation tasks and the firing of barrages).

All exercises should be directed by the company commander.

10. Framing the exercises

(a) An early reconnaissance of the area allotted should be carried out by the company commander.

Each exercise will be based on a simple tactical situation.

(b) The practical work of all schemes should open with the issue of the machine gun company commander's orders at the place at which they would be given out in war.

Range safety precautions and the safety of other platoons taking part must always be borne in mind. The scheme should be so framed that the restrictions on the choice of tactical positions, imposed by these considerations, are reduced to a minimum.

(c) If facilities exist it is most desirable that all sections in defence should dig in, be concealed, a detailed inspection of the position made, and shooting carried out on targets within the arc and on fixed lines.

(d) Although the officer framing the exercise cannot normally order the occupation of direct or indirect positions, situations can be created which will influence the platoon commander to adopt whichever is desired.

11. Conduct of the exercises

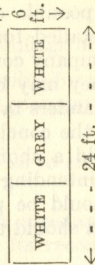
(a) Before the exercise commences, the opening narrative should be explained to all ranks taking part. Any assumed locations and movements of enemy and our own troops should be explained throughout the exercise. For purpose of co-operation, it may be desirable to represent headquarters of our own troops.

(b) Special attention will be paid to the following subjects:—

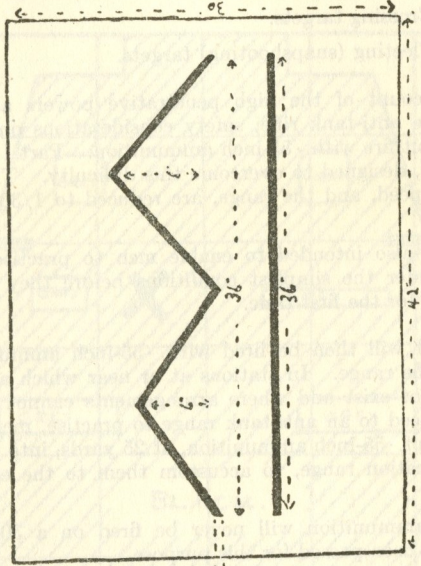
- i. Reconnaissance and issue of orders by platoon and section commanders.
- ii. Fire direction, fire control and fire discipline.
- iii. Section and platoon drill.
- iv. Care and concealment of guns, personnel, stores and vehicles during all phases.

APPENDIX VI
DETAILS OF MEDIUM M.G. TARGETS

Serial No.	Name	Details	Remarks	Practices for which required
1	White screen with black aiming mark	Dimensions about 3 ft. 6 in. long by 2 ft. 6 in. high.	i. The size of these screens need not be exact. ii. Aiming mark is not necessary for Practices 4.	1, 3 & 4
2	White screen with horizontal and oblique black lines	Dimensions of screen—about 3 ft. 6 in. long by 2 ft. 6 in. high. For details of lines, see diagram.	i. The size of this target need not be exact. ii. The black lines should be about $\frac{3}{4}$ -in. wide.	2
3	Prepared patch on stop butts	4 ft. square, prepared with cinders and sand to give observation of strike. One metal plate in centre as aiming mark.	If observation of strike cannot be obtained as many plates as are desired may be used provided the area is not greater than 4 ft. square.	5
4	Coloured screen...	24 ft. long and 6 ft. high, divided into three equal sections of 8 ft. Centre section coloured grey. Flank sections white.	These targets are most conveniently constructed in three sections each 8 ft. long and placed in sockets and stop butts.	6
5	6 ft.	See Appendix XII.	—	7



Target for Practice 2 M.M.G. Course



APPENDIX VII
ANTI-TANK RIFLE COURSE

(See Pamphlet No. V, 1937, General, paragraph 5.)

1. The course is designed to give practice in firing at:—

- i. Crossing targets.
- ii. Fleeting (snapshotting) targets.

2. On account of the high penetrative powers and the great range of the anti-tank rifle, safety considerations on many range areas prohibit fire with .55-inch ammunition. Part I of the course is, therefore, designed to overcome this difficulty. The size of the target, its speed, and the range, are reduced to 1/30 those of the normal.

Part I is also intended to enable men to practise aiming and swinging under the simplest conditions before they fire .55-inch ammunition for the first time.

3. Part II will then be fired with .55-inch ammunition on an anti-tank rifle range. In stations at or near which anti-tank rifle ranges do not exist and where arrangements cannot be made for men to proceed to an anti-tank range to practise, men will fire up to 5 rounds of .55-inch ammunition, at 25 yards, into the stop butt of a classification range, to accustom them to the effect of such firing.

.55-inch ammunition will never be fired on a 30-yards range unless it has been passed for this purpose.

4. On anti-tank rifle ranges where targets are placed in the open, the following system of signalling will be employed:—

The target will be so placed that men in a pit to a flank can see the shot-holes. At the firing point there should be a replica target (6 inches square) which can be made under unit arrangements. Both targets are divided into 1-foot squares (see Figure 1). These squares will be numbered from left to right, and from bottom to top. Thus, on the arrival of a shot on the target, the markers in the pit notify the firing point by telephone of its position by indicating, on the lines of an ordinary map reference, the square in which the shot-hole lies. If, therefore, a shot arrives on the target at "X" (see Figure 1), the marker merely telephones "Square 34". The position of the shot is then plotted on the target at the firing-point.

5. The ultimate aim must be to train all men in firing the anti-tank rifle. For the immediate future, units will train not less than three men for each anti-tank rifle on their establishment. The best .303-inch rifle shots should be selected. Practice in aiming off and swing can be obtained by using the normal traffic passing along roads in the vicinity of barracks as aiming marks.

THE 6-FOOT HEAD-ON TANK TARGET

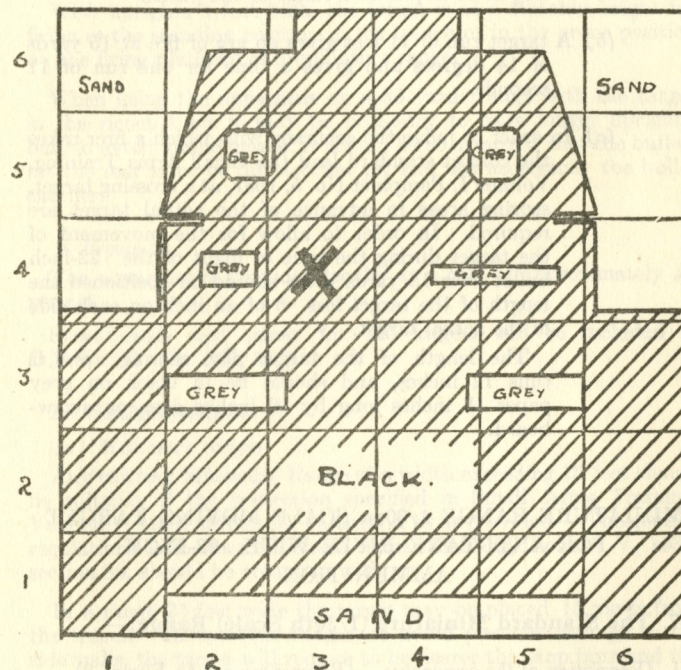


FIGURE 1

6. Instructions for anti-tank rifle 1/30th scale shooting with .22-inch ammunition (miniature or 30-yards range):—

- i. The apparatus described in paragraph 7 has been designed to provide practice at moving targets on a 1/30th scale range. It may also be used in connection with the 30-yards range.

ii. An improvised 1/30th scale range for use on service, or when the recognized 1/30th scale miniature range cannot be provided, is described in paragraph 8.

iii. The following points should be noted:—

(a) On a scale of 1/30th a target 4.4 inches by 2 inches overall travelling at 1 foot per second at a range of 15 yards represents a target 11 feet by 5 feet overall (the light tank type of direct crossing target) travelling at 20 m.p.h. at a range of 450 yards.

(b) A target run of 11 feet gives an arc of fire at 15 yards of 14 degrees and gives a time for one run of 11 seconds.

(c) In order to judge the accuracy with which a firer takes the correct standard lead (see Small Arms Training, Volume I, Pamphlet No. 5, 1937, at a crossing target, scoring areas in advance of the actual target are required. In order to allow for the movement of the target during the time of flight of the .22-inch bullet over 15 yards these should be positioned the length of the target less .6 of an inch on each side of the actual target.

The length of the target plus scoring areas is thus 12 inches, and should be in black on grey paper 18 inches long by 10 inches deep on strawboard.

MINIATURE RANGE 1/30TH SCALE MOVING TARGET FOR ANTI-TANK RIFLE WITH .22-INCH AMMUNITION

7. The Standard Miniature (1/30th Scale) Range:—

i. *Description of the apparatus.* (References are to Figure 2)

The apparatus consists of two uprights (A) of convenient height, slotted at the top to carry a composite board (B), about 12 feet long, on edge. The edges of this board are made to form a groove (C) in which travels a runner (D) formed of a piece of hardwood and shaped as shown to travel smoothly in the groove. To the sides of this runner are screwed two pairs of 3-ply brackets (E) each carrying a tin clip (F) which holds the target mounted on strawboard. Two cords are attached to hooks (G) on each side of the

runner. These pass round hooks (H) at the end of the runner track and are carried back behind the firing point to two small winding drums (not shown in sketch) as illustrated at Figure 4 of Plate 65 in Small Arms Training, Volume V. One edge of the board forming the runner track is straight so that when the runner is pulled along by the cord the target travels on the level. The other side is shaped as shown in the sketch so that by reversing the board and placing the runner on the shaped edge the target is given an undulating movement.

With uprights 4 feet high, the target is at a suitable height for firing in the standing position in the trench or in the prone position on the firing platform of a miniature range.

When using the apparatus on a 30 yards range with the target in the ricochet pit it may be necessary to have longer uprights, but, to avoid undue height, it should be so arranged that the bullets hit the rear slope of the ricochet pit and not necessarily the bullet catcher.

ii. *Provision*

The apparatus is provided locally at a cost of approximately £3 per set.

Strawboards and paper for the targets will be included in D.F.W.C.C. No. 967/1938.

iii. *Safety conditions*

(a) *Miniature ranges*

Any existing Miniature Range of a width exceeding 16 feet should be suitable, if the protection specified in Small Arms Training, Volume V, 1931, section 29, paragraph 18, is provided. The general regulations laid down in Small Arms Training, Volume V, 1931, section 30, should be complied with.

In a range 24 feet wide the target may be placed 15 yards from the trench. In narrower ranges, to avoid possible damage to the side walls, the target will require to be nearer the stop butt and the firing point moved correspondingly forward.

(b) *30 yards ranges*

Provided the rear slope of the ricochet pit is correctly constructed to prevent ricochets there should be no increased risk. The moving target will be included in the category of targets approved for use on 30 yards ranges. (Small Arms Training, Volume I, Pamphlet No. 1, 1941, refers.)

iv. Use of the apparatus

Only very little practice is required to cause the target to travel smoothly at approximately 1 foot per second, and the range is so short that the effect of a small discrepancy in the speed of the target on the result of a shot is negligible.

Only one shot should be fired at each run of the target, but as shots can be easily observed from the firing point a firer can fire a series of shots, each of which can be criticized, without the targets being changed.

8. The improvised (1/30th scale range)

An improvised 1/30th scale range for use on service, or when material and labour is not available for the construction of the standard apparatus, is described in Figures 3, 4 and 5.

The materials required are as follows:—

- 2 lengths of wood (stout branches or young trees) about 4 feet 8 inches long, and from 3 inches to 4 inches in diameter.
- 2 Spring paper clips (2 inches to 3 inches wide).
- 2 3-inch nails.
- 30 to 40 yards string.
- 3 staples (bent nails as alternative).
- 25 yards wire. (Telephone cable as alternative).

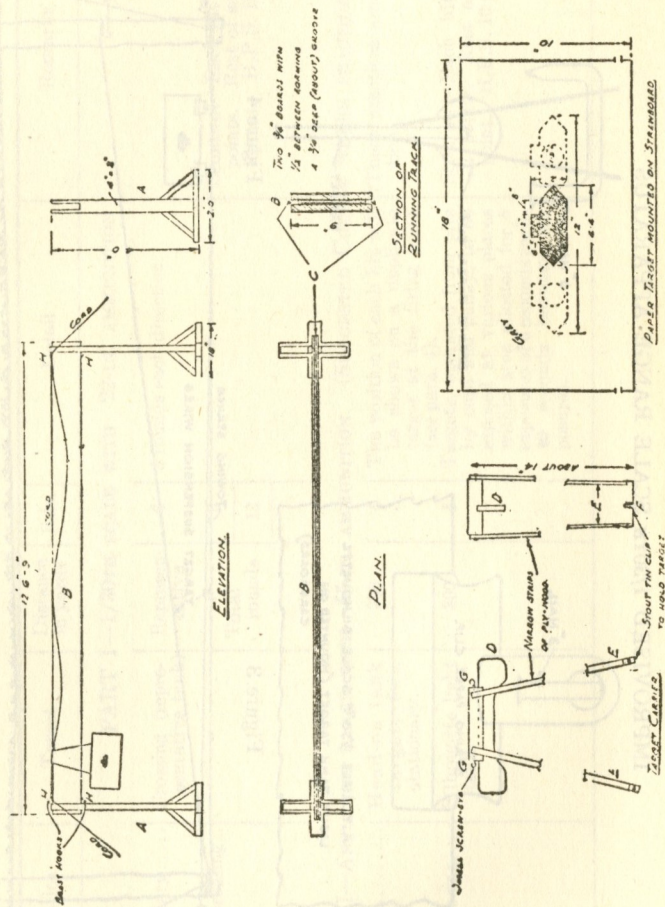
The two lengths of wood are firmly embedded into the ground about 10 yards apart and the wire or telephone cable tied tautly, as shown in drawing (Figure 5).

Staples are driven in as shown at the three places marked (a) to act as guides for the towing string.

The target (1/30th Scale Silhouette Tank) as issued is clipped into the two spring paper clips, the two 3-inch nails are bent as shown in drawing (Figures 3 and 4) and passed through the holes in the clips, and are used to suspend the target from the suspension wires.

The spring is then tied to the centre of the nails, passed through the staples and back to the firing point. The target is then drawn across the suspension wires as desired. To change from the direct crossing wire (top) to the diagonal wire (bottom) remove the nails from the clips and attach to diagonal wire. The string must be passed through the bottom staple when using the device for diagonal movement.

Figure 2
MINIATURE RANGE 1/30TH SCALE MOVING TARGET FOR ANTI-TANK RIFLE,
WITH .22-IN AMMUNITION



IMPROVED 1/30TH SCALE RANGE APPARATUS

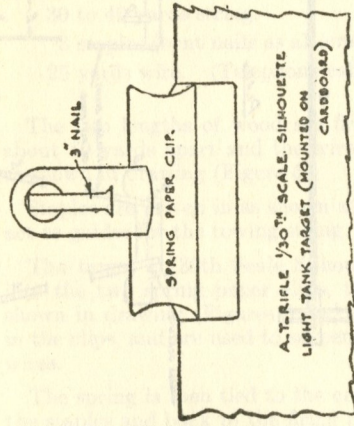


Figure 3

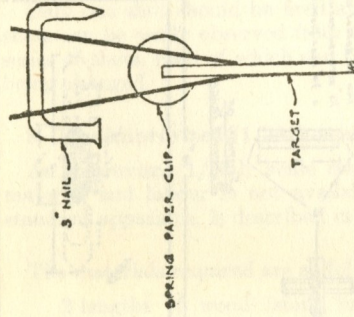


Figure 4

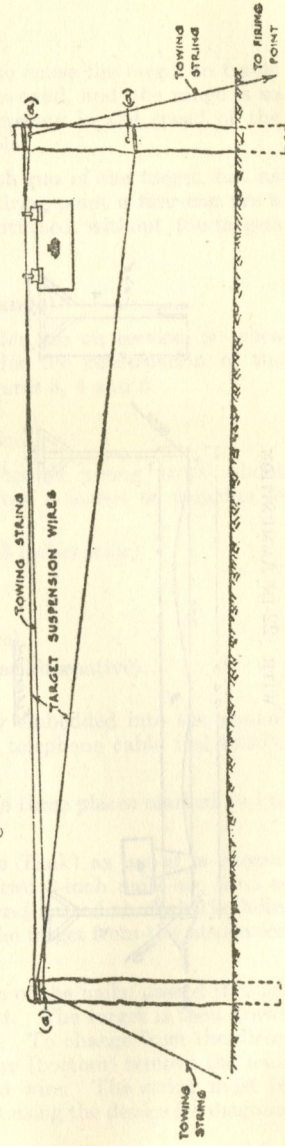


Figure 5

ANTI-TANK RIFLE COURSE

No.	Practice	Target	Distance in yards	Rds.	Detail	Remarks
PART I—1/30TH SCALE WITH .22-IN. AMMUNITION						
1	Preliminary.....	Crossing (representative tank)		6	3 rounds each direction.	
2	Direct crossing..	"	"	6	"	
			Total rounds	12		
PART II—ANTI-TANK RANGE WITH .55-IN. AMMUNITION. (SUGGESTED COURSE WHERE PRACTICABLE)						
3	Sighting.....	Head-on tank target, 6-ft. stationary.	300	4	The position of each hit will be shown on a duplicate target at the firing point (see para. 4).	SCORING.—Each hit in circle, 2 points. Rest of scoring area, 1 point. H.P.S. 12 points.
4	Snapshooting....	Silhouette light tank.	300	5	Targets, operated from pits by cord and pulley, to be exposed at various places within area allotted for 5 exposures of 6 seconds each. 10 seconds between exposures.	SCORING.—Each hit in circle, 2 points. Rest of target, 1 point. H.P.S. 10 points.

PART II—ANTI-TANK RANGE WITH .55-IN. AMMUNITION. (SUGGESTED COURSE WHERE PRACTICABLE)—Continued

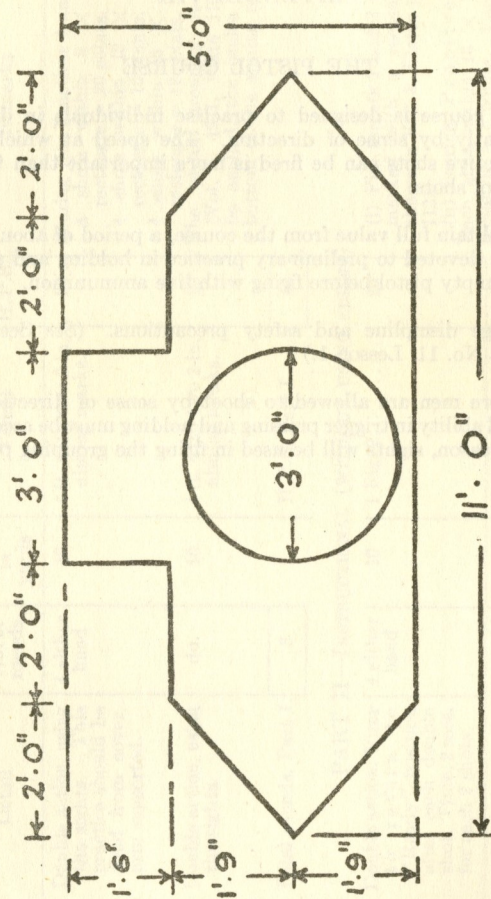
No.	Practice	Target	Distance in yards	Rds.	Detail	Remarks
45	Direct crossing..	Silhouette light tank	300	6	3 rounds each direction (target on trolley).	SCORING.—As above. H.P.S. 12 points.
6	Diagonal crossing	Box light tank...	300-100	5	One undulating run in each direction. 5 rounds to be fired while target is moving. 3 rounds as it approaches the firer and 2 on the return run.	SCORING.—Each hit on tank, 2 points. H.P.S. 10 points. H.P.S. Part II, 32.
			Total rounds	20		

40

NOTE.—In all moving target practices the target should be towed at a speed of 20-25 m. p. h.

41

ANTI-TANK RIFLE DIRECT CROSSER TANK TARGET
(SILHOUETTE LIGHT TANK)



COLOUR OF PAPER:—

FOR CLASSIFICATION—BLACK
FIELD FIRING—MOTLEY

FIGURE 6

APPENDIX VIII

THE PISTOL COURSE

1. The course is designed to practise individuals in delivering fire instantly by sense of direction. The speed at which one or more effective shots can be fired is more important than the close grouping of shots.

2. To obtain full value from the course, a period of about a week should be devoted to preliminary practice in holding and snapping with an empty pistol before firing with live ammunition.

3. Range discipline and safety precautions. (See Sec. 9 and Pamphlet No. 11, Lesson 1.)

4. Before men are allowed to shoot by sense of direction, their individual ability in trigger pressing and holding must be ascertained. For this reason, sights will be used in firing the grouping practices.

PART I—PRELIMINARY (USING SIGHTS)

No.	Practice	Detail	No. of rounds	Range in yards	Target	H. P. S.	Remarks
1	Grouping...	Double action, using the sights. This practice should be fired from cover, arm supported.	4 either hand	10	4 ft. with two 2-in. aiming marks.	20	Scoring (for Practices 1 and 2):— 4 shots within 8 X 4-inch rectangle = 20 points. 4 shots within 12 X 8-inch rectangle = 16 points. 4 shots within 16 X 12-inch rectangle = 12 points. The pistol grouping rectangle (Vol. 5, 1931, Plate 110) will be applied, the centre to the bottom of the aiming mark.
2	do.	Double action, using the sights.	do.	10	4 ft. with two 2-in. aiming marks.	20	
		Total rounds, Part I.	8		H. P. S. Part I.	40	

PART II—INSTRUCTIONAL (WITHOUT USING SIGHTS)

3	Application	Double action. Firer to return to "Ready" position after each double shot. Time, 2 secs. for each 2 shots.	4 either hand	10	1 Fig. 2.	20	(i) Fig. targets 2 and 3 will be marked with a rectangle as shown in Vol. 5, Plates 111 and 112A. (ii) Scoring Practices 3-7. Each shot within 16 X 12-inch rectangle = 5 points. Each shot on remainder of target = 3 points. (iii) Two Fig. 2 targets on sledge (Vol. 5, Plate 110) capable of
4	do.	Double action. 2 shots at each target. Time for practice, 3 secs.	do.	10	2 Figs. 2.	20	

PART II—INSTRUCTIONAL (WITHOUT USING SIGHTS)—Continued

No.	Practice	Detail	No. of rounds	Range in yards	Target	H. P. S.	Remarks
5	Attack.....	Double action. Firer advancing 5 yds. Time, 6 secs.	4 either hand.	20 to 15	2 Figs. 2..... (one charging).	20	movement. On the command "Fire," one of them (as indicated by the Conducting Officer) will charge. The firer will first fire at the charging target, then advance 5 yards and fire at the other target. Where several firers are firing in one detail, the Conducting Officer will ensure as far as possible that all firers advance together. (iv) In all practices of Part II, two shots will be fired in quick succession at each exposure (see Pamphlet 11, Lesson 5). Qualifying standard = 50 and over.
6	Surprise.....	Double action. Drawing loaded pistol from case. Time, 4 secs.	do.	15 to 5	2 Figs. 2..... (both charging).	20	
7	Disappearing (Gas)	Double action. Two exposures each of 2 secs. Two shots will be fired at each exposure. Respirators will be worn. This practice, if possible, will be fired from cover, the arm being rested. The sights will therefore be used.	do.	25	1 Fig. 2. Each exposure will be at a different point on a front of 3 yds. if possible.	20	
			Total rounds, Part II.	20	H. P. S. Part II.....	100	

APPENDIX IX
THOMPSON SUB-MACHINE GUN COURSE

No.	Practice	Target	Range	Rds.	Detail	Remarks
1	Single rounds..	1 Fig. 2.....	20 yds.	5	To be fired from the shoulder, with rough alignment of sights (a). No time limit.	Scoring—3 points for each hit on the target. H.P.S. 15.
2	Bursts.....	4 Figs. 2 spaced 1 width apart.	15 yds.	10	To be fired in 4 or 5 bursts by sense of direction from the waist. Time, 8 secs.	Scoring—3 points for each hit on the target. Bonus for hitting all targets—5 points. H.P.S. 35.
3	Single rounds..	4 Figs. 2 spaced 1 width apart.	15 yds.	10	To be fired by sense of direction from the waist with change lever at automatic (b). Time 10 secs.	Scoring—as for Practice 2.
4	Single rounds..	1 Fig. 2.....	50 yds.	5	To be fired from the shoulder, with rough alignment of sights (a). Time limit, 30 secs.	Scoring—as for Practice 1.
			Total	30		H. P. S. 100

- NOTES.—(a) For method of rough alignment of sights, see Pamphlet No. 21, Lesson 2, para. 6.
 (b) For method of firing single rounds with change lever at automatic, see Pamphlet No. 21, Lesson, 2 para. 5.
 (c) The whole of the above course may be fired on the 30-yds. range. If 50 yds. is *not* possible, Practice 4 should be fired at the nearest possible distance to this.
 (d) Further practice, according to S.A.A. available, should be arranged to deal with surprise and moving targets on any suitable range area.
 (e) All personnel armed with the Thompson sub-machine gun should fire the above course. In addition, at least 2 reserves per gun should fire it also.

APPENDIX X

3-INCH MORTAR PRACTICE

1. The firing of the mortar course differs from the firing of other weapons in the infantry battalion in that it cannot be regarded as a range course, nor is it a test for individual members of the mortar platoon.

It is designed to practise the fire controllers and their understudies in the engagement of targets with high explosive and in the method of producing a smoke screen, and to exercise all ranks in battle drill.

The course is divided into three parts as enumerated below.

2. Part I

i. *Object.*—The engagement of point targets to exercise untrained fire controllers and understudies in the rules of ranging, and mortar numbers in handling live ammunition.

ii. *General.*—The ammunition allotted will normally be allotted to non-commissioned officers who have recently been posted to the mortar platoon and have not controlled mortar fire with live ammunition, and to selected private soldiers.

In all shoots the mortar should be within easy voice control of the observation post and only simple point targets should be engaged.

iii. *Conduct.*—(a) The fire controllers to be exercised should be assembled near the observation post under the platoon commander in a position from which they can hear the fire control orders and observe the fire. On the conclusion of each shoot the platoon commander will discuss the orders given.

(b) The spare mortar numbers of the whole platoon should be assembled near the mortar under the platoon sergeant in a position from which they can watch the drill and fire discipline. On the conclusion of each shoot the platoon sergeant will point out the mistakes made and change round the detachment at the mortar before the next shoot.

It is suggested that, if possible, 8 bombs be allotted to each fire controller.

3. Part II

i. *Object.*—The neutralization of small areas or linear targets with high explosive or the screening of areas with smoke, after bringing the mortar into action under service conditions.

ii. *General.*—Shoots will normally be controlled by the non-commissioned officers of the platoon.

iii. *Conduct.*—The tactical situation will be given to the fire controller by an officer representing the rifle commander under whom the mortar detachment has been placed. On the conclusion

of each exercise the platoon commander will comment on:—

- (a) The selection of the observation post, base plate position and position in readiness.
- (b) The occupation of the position.
- (c) The engagement of the target.

A senior non-commissioned officer will watch the work of the detachment and be prepared to comment at the conclusion of the shoot.

Casualties, gas and safety problems may be practised during the exercises.

4. Part III

i. *Object.*—As for Part II, introducing the employment of two or more mortar detachments under one rifle commander.

ii. *General.*—Shoots will normally be controlled by the non-commissioned officers of the platoon.

iii. *Conduct.*—The tactical situation will be given to the mortar platoon or senior detachment commander by an officer representing the rifle commander under whom the mortar detachment has been placed.

Parts II and III combined should provide each fire controller with one area or linear and one smoke shoot.

Should insufficient ammunition be allotted to enable a satisfactory Part III to be fired, the ammunition available for Part III could advantageously be expended on additional Part II practices.

5. Safety precautions at the mortar position

i. The non-commissioned officer conducting the shooting at each mortar will see that the mortar is laid safely as regards line and elevation. He will see that each bomb is fired with the charge ordered and the safety cap is removed before the bomb is placed in the barrel. He will also watch for and try to locate blinds.

ii. In addition a non-commissioned officer will be detailed to watch movements of aircraft in the vicinity, and, if an aircraft is flying so as to approach the line of fire, he will stop the firing until it is clear. (Aircraft flying at over 2,500 feet are safe.)

6. Procedure for destroying blind projectiles

If the range is closed, do nothing. If it is open, the following action must be taken:—

- i. If not in possession of a detonating set:
 - (a) Mark the blind projectile with a red flag.
 - (b) Report its location to the authority concerned.
- ii. If in possession of a detonating set, destroy the blind in situ. The procedure for destroying blinds is laid down

in Small Arms Training, Volume I, Pamphlet 13, Lesson 10, except that 1 pound slab of gun cotton must be used in conjunction with the detonator and primer.

APPENDIX XI

FIRING 2-INCH MORTAR BOMBS

1. Personnel to be exercised

In addition to the two mortar men, at least 200 per cent reserves should be exercised.

2. General

Practice in firing with live ammunition must be carried out in as realistic a manner as possible. The two mortar men should be exercised in working together, and all firing should, whenever possible, take place from behind natural cover, thereby necessitating the use of an auxiliary aiming mark. The Number 2 must also be taught to observe and correct the fire of his Number 1.

3. Smoke

No range is necessary for firing smoke bombs, and any suitable area may be used (see Pamphlet Number 8, Training with live bombs).

Smoke bombs should be used in exercising mortar personnel and their reserves in laying a smoke screen (see Pamphlet No. 8, Lesson 5).

4. High explosive

An approved range only can be used; there are, however, many areas that are quite suitable, for which local approval for firing high explosive can be granted, if no existing mortar range is available.

In such cases great care must be taken to dispose of blinds (see Pamphlet Number 8, Training with live H.E. and smoke bombs.)

High explosive bombs should be used for exercising mortar personnel and their reserves. Natural targets are the most suitable.

5. Firing from slit trenches

As opportunity offers, personnel should be exercised in firing the mortar from slit trenches.

APPENDIX XII

DETAILS OF TARGETS FOR RIFLE AND L.M.G. COURSES

4 ft. and 6 ft. classification targets

For the information of officers conducting range practices, and of range wardens, the following is a description of these targets:—

4-ft. targets (see Figs. 7 and 8).—An all grey paper facing pasted on to a sized canvas backing 4-ft. square. Concentric circles of 2-ft., 3-ft., and 4-ft. diameter are drawn on the grey paper—the

4-FT. TARGET

Target: GREY. Figure 5: BROWN

For details, see Figure 8

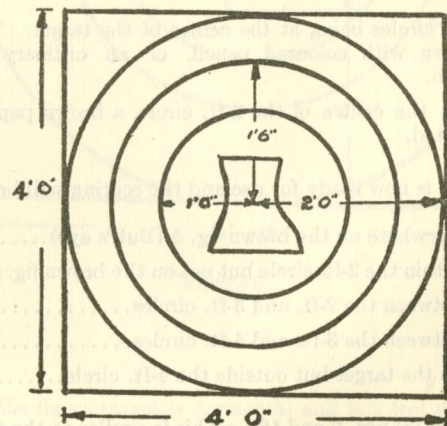


Figure 7

FIGURE 5 TARGET

Colour: BROWN

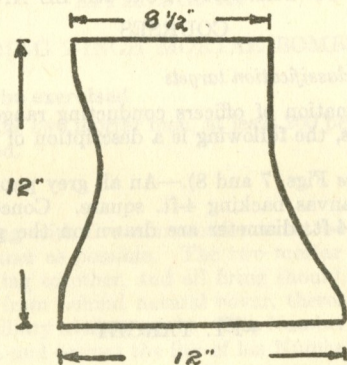


Figure 8

centre of all circles being at the centre of the target. The circles can be drawn with coloured pencil, or an ordinary blacklead pencil will do.

Exactly in the centre of the 2-ft. circle, a brown paper figure 5 target is pasted.

The target is now ready for use and the scoring will be:—

- A hit anywhere on the brown fig. 5 (Bull's eye)..... 4 points
- A hit within the 2-ft. circle but not on the brown fig. 5. 3 points
- A hit between the 2-ft. and 3-ft. circles..... 2 points
- A hit between the 3-ft. and 4-ft. circles..... 1 point]
- A hit on the target but outside the 4-ft. circle..... MISS

6-ft. targets (see figs. 9 and 10).—This is similar to the 4-ft. target but the circles are 3-ft., 4-ft., and 6-ft. diameter, and a brown paper figure 3 is pasted inside the 3-ft. circle, in such a way that the

6-FT. TARGET

Target: GREY Figure 3: BROWN

For details, see Figure 10

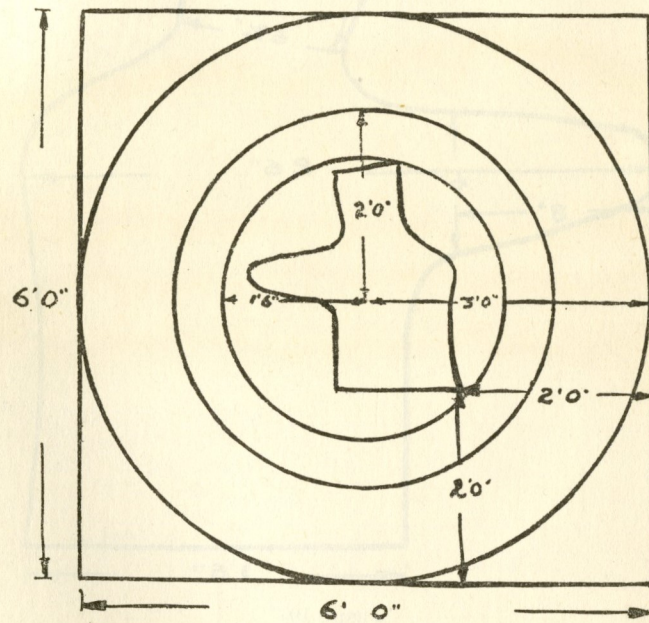


Figure 9

bottom of the figure target is horizontal and is 2 feet up from the bottom of the 6-ft. target, and so that the bottom right-hand corner of the figure target is 2 feet from the right edge of the 6-ft. target, measured horizontally.

FIGURE 3 TARGET

Colour: BROWN

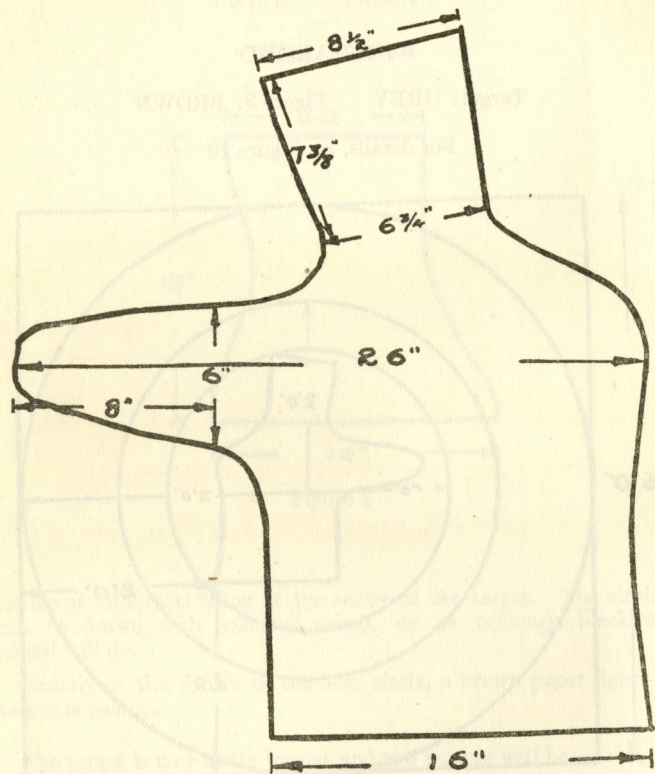


Figure 10

Scoring is similar to that for the 4-ft. targets, adjusted to the larger circle diameters.

NOTE.—Until targets can be altered, as an interim measure the existing yellow and grey targets will be used, with the appropriate figure target in place of the bull.